



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/770,258	02/02/2004	Ming-Szu Chan	10113711	9591
34283	7590	11/29/2005	EXAMINER	
QUINTERO LAW OFFICE 1617 BROADWAY, 3RD FLOOR SANTA MONICA, CA 90404			CHEN, WEN YING PATTY	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

11A

<b>Office Action Summary</b>	<b>Application No.</b> 10/770,258	<b>Applicant(s)</b> CHAN, MING-SZU	
	<b>Examiner</b> Wen-Ying P. Chen	<b>Art Unit</b> 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's Amendment filed 11/02/05 has been received and entered. Claims 18-20 are newly added per Amendment of Nov. 2, 2005. Claims 1-20 are now pending in the current application.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "port" in claim 20 is a relative term which renders the claim indefinite. The term "port" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear as to what kind of port that the LED and the Zener diode is connected to. For purpose of examination, the port will be interpreted as a signal source for which the LED and Zener diode are connected to.

***Claim Rejections - 35 USC § 103***

Claims 1-3, 7-10 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weindorf et al. (US 2002/0130985) in view of Webster et al. (US 6166554).

With respect to claim 1 (Amended): Weindorf et al. disclose in Figure 3 a liquid crystal module comprising:

a body (element 302); and

a circuit board (element 316) disposed on the body, having a substrate (Paragraph 0032), a plurality of lead wires with a plurality of openings exposing the lead wires (Paragraph 0025, wherein signal wires are provided on the flexible circuit board and are exposed by the thermal vias, which are openings of the circuit board),

an LED (Fig. 3, elements 322 and 324) and a Zener diode (Fig. 3, element 316, wherein the Zener diode is part of the LED drive circuit as described in Paragraph 0048) each coupled to the lead wires through the openings, wherein the LED and the Zener diode are juxtaposed on the lead wires corresponding to each other (Paragraph 0030 and Figure 2, wherein the LED 204 is placed next to the control circuit 206).

Weindorf et al. fail to specifically disclose that the lead wires are enclosed by the substrate.

However, Webster et al. disclose in Column 5 lines 56-67 and Column 6 lines 1-30 a multi-layer flexible circuit board, wherein conductive lead wires are enclosed by the substrate, and that openings are formed on both sides of the circuit board exposing the lead wires for coupling semiconductor devices.

Therefore, it would have been obvious at the time the invention was made to construct a liquid crystal module as taught by Weindorf et al. wherein the flexible circuit board is a multi-layer circuit board with lead wires enclosed by the substrate as taught by Webster et al., since Webster et al. teach that such a multi-layer circuit board ensures a reliable connection and that a multi-layer circuit board prevents short-circuit when routing the lead wires for signal connections (Column 1, lines 18-21).

As to claim 2: Weindorf et al. further disclose in Paragraph 0039 that the Zener diode is coupled to the lead wires by welding (wherein the LED and the driving circuitry are soldered to the circuit board).

As to claim 3: Weindorf et al. further disclose in Figure 3 that the body (element 302) is rectangular.

As to claims 7 and 8 (Amended): Weindorf et al. disclose in Figure 3 a liquid crystal module comprising:

a body (element 302); and

a circuit board (element 316) disposed on the body, comprising a substrate (Paragraph 0032) having a first side and a second side, a plurality of lead wires with a plurality of openings formed on both sides of the substrate exposing the lead wires (Paragraph 0025, wherein signal wires are provided on the flexible circuit board and are exposed by the thermal vias, which are openings of the circuit board),

an LED (Fig. 3, elements 322 and 324) and a Zener diode (Fig. 3, element 316, wherein the Zener diode is part of the LED drive circuit as described in Paragraph 0048) each coupled to the lead wires through the openings, wherein the LED is coupled to the lead wires through the

Art Unit: 2871

openings on the first side, and a Zener diode coupled to the lead wires through the openings on the second side, wherein the LED and the Zener diode are disposed on the lead wires on the first side and the second side respectively (Paragraph 0025, wherein the Zener diode/control circuit is directly beneath the LED).

Weindorf et al. fail to specifically disclose that the lead wires are enclosed by the substrate.

However, Webster et al. disclose in Column 5 lines 56-67 and Column 6 lines 1-30 a multi-layer flexible circuit board, wherein conductive lead wires are enclosed by the substrate, and that openings are formed on both sides of the circuit board exposing the lead wires for coupling semiconductor devices.

Therefore, it would have been obvious at the time the invention was made to construct a liquid crystal module as taught by Weindorf et al. wherein the flexible circuit board is a multi-layer circuit board with lead wires enclosed by the substrate as taught by Webster et al., since Webster et al. teach that such a multi-layer circuit board ensures a reliable connection and that a multi-layer circuit board prevents short-circuit when routing the lead wires for signal connections (Column 1, lines 18-21).

As to claim 9: Weindorf et al. further disclose in Paragraph 0039 that the Zener diode is coupled to the lead wires by welding (wherein the LED and the driving circuitry are soldered to the circuit board).

As to claim 10: Weindorf et al. further disclose in Figure 3 that the body (element 302) is rectangular.

As to claims 14-17 and 19 (Amended): Weindorf et al. disclose in Figure 3 a liquid crystal module comprising:

a body (element 302); and

a circuit board (element 316) comprising:

an insulating substrate (Paragraph 0032), having a first side and a second side, a plurality of lead wires with a plurality of openings formed on both sides of the substrate exposing the lead wires (Paragraph 0025, wherein signal wires are provided on the flexible circuit board and are exposed by the thermal vias, which are openings of the circuit board),

an LED (Fig. 3, elements 322 and 324); and

a Zener diode (Fig. 3, element 316, wherein the Zener diode is part of the LED drive circuit as described in Paragraph 0048);

each coupled to the lead wires through the openings, wherein the LED is coupled to the lead wires through the openings on the first side, and a Zener diode coupled to the lead wires through the openings on the second side, wherein the LED and the Zener diode are juxtaposed on the lead wires on the first side and the second side respectively (Paragraph 0025, wherein the Zener diode/control circuit is directly beneath the LED).

Weindorf et al. fail to specifically disclose that the lead wires are enclosed by the substrate.

However, Webster et al. disclose in Column 5 lines 56-67 and Column 6 lines 1-30 a multi-layer flexible circuit board, wherein conductive lead wires are enclosed by the substrate, and that openings are formed on both sides of the circuit board exposing the lead wires for coupling semiconductor devices.

Therefore, it would have been obvious at the time the invention was made to construct a liquid crystal module as taught by Weindorf et al. wherein the flexible circuit board is a multi-layer circuit board with lead wires enclosed by the substrate as taught by Webster et al., since Webster et al. teach that such a multi-layer circuit board ensures a reliable connection and that a multi-layer circuit board prevents short-circuit when routing the lead wires for signal connections (Column 1, lines 18-21).

As to claim 18 (New): Weindorf et al. further disclose in Figure 2 and Paragraph 0030 that the plurality of openings are provided on a first side of the insulating substrate so that the LED and the Zener diode are arranged in parallel on the first side of the insulating substrate (wherein the LED 204 is placed next to the control circuit 206).

As to claim 20 (New): Weindorf et al. further disclose in Figures 2 and 4 and Paragraph 0030 that the liquid crystal module includes a port (element 222, the control source), wherein the lead wires connect the LED and Zener diode to the port.

Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weindorf et al. (US 2002/0130985) and Webster et al. (US 6166554) in view of Mizuno (US 6398560).

Weindorf et al. and Webster et al. disclose all of the limitations set forth in the previous claims, but fail to specify that the liquid crystal module body be made of plastic.

However, Mizuno discloses in Figure 11 a circuit board (element 26) disposed on a body (element 14), wherein the body is made of plastic (Column 7, line 56).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to construct a liquid crystal module as taught by Weindorf et al. and Webster et al. with the plastic body taught by Mizuno, since Mizuno teaches that by using a plastic body, it has an easiness in forming or shaping or mechanical processing (Column 7, lines 56-58).

Claims 5-6 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weindorf et al. (US 2002/0130985) and Webster et al. (US 6166554) in view of Kakuguchi et al. (US 2004/0254001).

Weindorf et al. and Webster et al. disclose all of the limitations set forth in the previous claims, but fail to specify that the liquid crystal module can be used as a display of a mobile phone or a display of a personal digital assistant.

However, Kakuguchi et al. disclose in Figure 1 a liquid crystal display screen (element 21), which is used on a mobile phone and further teach that the same liquid crystal display screen can also be used on a personal digital assistant (Paragraph 0072).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the LCD module taught by Weindorf et al. and Webster et al. into the electronic devices taught by Kakuguchi et al. so that having a liquid crystal display screen on a mobile phone or on a personal digital assistant would make it more convenient for the user to view the data within.

Art Unit: 2871

***Response to Arguments***

Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

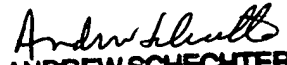
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Ying P. Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wen-Ying P Chen  
Examiner  
Art Unit 2871

WPC  
11/18/05

  
ANDREW SCHECHTER  
PRIMARY EXAMINER